Vaping and Beyond: Current Teen Drug Trends and Terminology

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Why is this important?

- More informed
- Less chance of discussions with teens going ‘over our head’
- Teens more likely to open up to the informed
- Knowing what we’re overhearing or reading
- Target specific substances for intervention
- Making informed decisions about intervening
Monitoring the Future

- The University of Michigan has an ongoing research project called Monitoring the Future that has followed adolescent substance abuse trends since 1975.
- The project anonymously surveys 8th, 10th, and 12th grade students across the nation including annual follow-up surveys for a number of years after graduation.
- Each year over 45,000 students from approximately 400 schools across the county are surveyed.

Source: www.monitoringthefuture.org
What is this research telling us?

- Increase in teen vaping from 2017 to 2018 was the largest in the history of the study by double (43 year old study)

- 12\textsuperscript{th} graders vaping nicotine past 30 days nearly doubled (11\% to 21\%) (8\% to 16\% for 10\textsuperscript{th} grade and 3.5\% to 6\% for 8\textsuperscript{th} grade)

- Adding 1.3 million nicotine vapers from 2017-18 (9\textsuperscript{th}-12\textsuperscript{th} grade)

Source: www.monitoringthefuture.org
What else is this research telling us?

• Marijuana vaping past 30 day use also increased significantly from 2017-18 (4.5 to 7.9% for 12th, 4.3 to 7% for 10th, and 1.6 to 2.6 for 8th)

• Cigarette use among 8th and 10th grades did not decline (had been for two decades)

• Binge drinking and prescription opioid use actually declined (especially for 12th graders)

Source: www.monitoringthefuture.org
## Vaping Statistics

<table>
<thead>
<tr>
<th>E-Cigarette/Vaping</th>
<th>2016</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students (all 10&lt;sup&gt;th&lt;/sup&gt;, 12&lt;sup&gt;th&lt;/sup&gt; graders surveyed) who have used nicotine e-cigarette/vaping product in the past 30 days</td>
<td>12%</td>
<td>26%</td>
</tr>
<tr>
<td>Students who have used vaping product in the past year</td>
<td>-</td>
<td>29%</td>
</tr>
<tr>
<td>Students who used e-cigarette for the first time ever in the past year</td>
<td>13%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Source: Illinois Youth Survey 2018 (suburban Cook, DuPage Counties)
What is Vaping?

Term used to describe when a substance is heated to the point of releasing vapor (vaporizing) but not combusted (lit on fire)

• Inhaling and exhaling the aerosol, often referred to as vapor, which is produced by an e-cigarette or similar device

• Increasing in popularity as a way to ingest nicotine and cannabis

• Usually relatively odorless, and difficult to distinguish between nicotine and cannabis vape
What’s in E-cigarettes/E-juice?

• The FDA has not evaluated any of the e-liquids currently on the market and does not regulate these products. FDA requires vape manufacturers to reveal ingredients in e-liquids, but not the harmful carcinogens in the heated vapor. FDA is considering significant restriction on flavors.

• *Ingredients in e-liquid (e-juice): Nicotine, flavoring, humectant (propylene glycol or vegetable glycerin)*

• *Once heated: Formaldehyde, Acetaldehyde, Acrolein, Particulates and Toxic Metals*
# Common Chemicals in Vapes (42)

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Source/ применение</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>(paint stripper)</td>
</tr>
<tr>
<td>Acetone</td>
<td></td>
</tr>
<tr>
<td>Acrolein</td>
<td></td>
</tr>
<tr>
<td>Benzene</td>
<td>(pest and gas)</td>
</tr>
<tr>
<td>Cadmium</td>
<td>(car batteries)</td>
</tr>
<tr>
<td>Chromium</td>
<td></td>
</tr>
<tr>
<td>Diacetyl</td>
<td>(popcorn lung)</td>
</tr>
<tr>
<td>Diethylene Glycol</td>
<td>(afreeze)</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td></td>
</tr>
<tr>
<td>Isoprene</td>
<td>(rubber)</td>
</tr>
<tr>
<td>Lead</td>
<td></td>
</tr>
<tr>
<td>Nickel</td>
<td></td>
</tr>
<tr>
<td>Proponal</td>
<td></td>
</tr>
<tr>
<td>Propylene Glycol</td>
<td>(deicing)</td>
</tr>
<tr>
<td>Tin</td>
<td></td>
</tr>
<tr>
<td>Toluene</td>
<td>(poison industrial solvent)</td>
</tr>
</tbody>
</table>
Vaping Recently Linked with Deaths/Significant Damage

• 26 vaping related deaths (21 states)
• Over 1300 diagnosed with breathing-related illnesses
• Some needed assistance breathing/intensive care
• Chemical burns (hydrogen cyanide)
Vaping Recently Linked with Lung Damage

- 14 teens in Wisconsin hospitalized with lung damage
- All admitted to recently vaping, both marijuana and nicotine
- Some needed assistance breathing/intensive care

https://youtu.be/6wGsyG-VaAQ

You thought Juuls were safe. So did I the black dots on my lungs are all reminiscence of juuling. I’ve been doing it for a year and half and can never do it again. You really shouldn’t either I know how hard it is it to change anyone’s mind who’s

Addicted because I was to. And I don’t think anyone could have said anything to make me stop. But your lungs most likely look like this to if you’ve been smoking. Don’t let it get worse. Please stop. Like really please it’s so fucking scary.
Vaping and Cancer

- E-cig nicotine vapor causes lung cancer in mice (New York University)
- First study to link vaping nicotine to cancer
- Equal to the amount of 3-6 years of use
Nicotine and the Adolescent Brain

• Nicotine use has spiked in the last couple years with emergence of vaping
• Use in adolescence interferes with natural brain development in some key areas
• Nicotine impairs development of the prefrontal cortex (area responsible for decision making, judgment, and planning)

Source: http://www.jneurosci.org/content/34/16/5529.full
Risk for Progression of Use

• Over 90% of adults with a severe substance use disorder began use under age 18.

• Children who begin using at or before age 13 have a 47% risk of developing a severe substance use disorder during their lifetime, age 17 run about 25%, age 21 run 10%

Source: http://www.casacolumbia.org/addiction-research/reports/adolescent-substance-use
Juul

Specific vaping product from Pax Labs similar to an e-cigarette used to ingest nicotine ($50)

- Liquid contains nicotine salts extracted from the tobacco leaf (2x nicotine of previous e-cigs)
- Variety of flavors
  - Cool mint
  - Mango
  - Crème brule
Suorin Air/Drop

Another common vaping product from Goldreams Technology in China ($20-$35)

• Comes with refillable nicotine cartridge
• Size of a credit card
• Looks like battery
• E-liquids in flavors
Phix

Another common vaping product from ECS Global ($35)

- Slightly stronger battery than Juul
- Strawberry
- Spearmint
- Mango
- Butterscotch
E-juice and Pods

- Currently 7,700 flavors of e-juice available
  - A bottle of e-juice contains enough nicotine to kill an adult
- Pods come in many flavors as well
  - Each pod is the equivalent of a pack of cigarettes
Mods

Modified e-cigarette or vape pen. Often refers to modification of the battery that powers the device.

- Stronger, longer lasting, and more consistent batteries increase the intensity of the vapor
- The mods can also involve the casing and atomizer (the part that creates the vapor).
- Vape on steroids
Vape Tanks
195 incidents of explosion or fire involving electronic cigarettes were reported by U.S. media between 2009 and 2016, according to the Federal Emergency Management Agency.

- **Texas man dies after vape pen he was using exploded**
- **Deadly Florida house fire caused by exploding vape pen**
Pens/Cartridges (Carts)
Vaping pot is more powerful than smoking it

- At the same level of THC, vaping leads to higher blood concentrations of the chemical than smoking, as well as higher levels of impairment.
- Vaping pot can cause hallucinations, vomiting and paranoia.
- Adolescents are now more likely to vape marijuana than smoke it.

Source: NBC News
Dabs

Dabs is a highly concentrated butane hash oil (BHO) created in a process where high quality cannabis is blasted with butane and extracted.

- Heated and inhaled
- Contains 70-99% THC compared to 15-20% THC in regular cannabis
- Wax, oil, shatter, resin
- Dart (on a cigarette)
Rig

A rig is a device used to vaporize and inhale dabs.

• Looks similar to a water pipe or bong
• Usually a nail is heated with a hand-held torch to a high temperature and a small piece of the concentrate is ‘dabbed’ onto a nail
• Vapor released is then inhaled through the pipe
Blunts

- Hallowed out cigar filled with ground up marijuana
- Typically very potent due to amount used
- Woods, backwoods, pre-roll, swisher, ditches, vegas, games
Moke/Spliff

- Term for marijuana mixed with tobacco
- More common in Europe, Australia and other parts of the world
- Increases the THC content and thus produces a stronger high
Marijuana and the Brain

• Rapid brain growth in key parts of the brain continues into the 20s.

• Too much attention is being paid to legalization and not enough to impact on brain development.

• Hippocampus (memory), amygdala (emotion and anxiety), nucleus accumbens (motivation), hypothalamus (appetite, stress), cerebellum (muscle coordination)

Source: http://www.jneurosci.org/content/34/16/5529.full
CBD Oil

Abbreviation for Cannabidiol (one of the active ingredients in the cannabis plant).

- CBD is not psychoactive (mind-altering) in its pure form
- FDA approved medication to reduce seizures in children with rare forms of epilepsy
- CBD sold in stores not regulated/tested
- Inconsistent amounts of CBD
- Acute poisoning, seizures, nausea
- Loss of consciousness, hallucinations
Edibles

• Increasingly popular alternative to smoking marijuana
• Produced to infuse marijuana into various ingestible forms
• Problem is that effects are hard to predict and difficult to know dose
K2/Spice

Most widely known specific names for types of synthetic marijuana

• Industrial chemicals are sprayed on pieces of dried plant material

• In April 2018, four people died and 153 others sick in Illinois from consuming synthetic marijuana that was laced with rat poison.

• Their symptoms included coughing up blood, blood in the urine, nose, or gums, and internal bleeding
Vaping Alcohol

Alcohol is heated and then vapor is inhaled
Risk for overdose
Bypasses liver
Effects more potent
Fentanyl

• Powerful synthetic opioid pain medication used to manage chronic pain
• More powerful than heroin
• Increase in illegal fentanyl shipped from China
• Often added to heroin or pressed into pills
• More overdose deaths
Acetyl Fentanyl
- October 2015: 72 overdoses in 74 hours in Chicago from Acetyl Fentanyl
- 100x more powerful than heroin

Carfentanil
- “Elephant Tranquilizer”
- 10,000x more potent than morphine

W-18
- “Super Heroin”
- 100x more potent than Fentanyl
Cocaine Laced with Fentanyl

- Four people died of drug overdoses in September 2019 in Will County (Joliet and Lockport)
- Field and lab tests confirmed the overdoses were caused by fentanyl-laced cocaine
- Both drugs look similar making it difficult to differentiate
Dextromethorphan (DXM)

- Similarly, DXM is a common cough suppressant in cold medicines.
  - Robitussin, NyQuil, Dimetapp, Coricidin, TheraFlu
  - When abused in higher doses, it produces dissociation, distorted bodily perceptions, and loss of sense of time
Lean (sizzurp/purple drank)

• Prescription strength cough syrup mixed with sprite (promethazine and codeine are active ingredients)

• Danger arises in high doses because both are depressants increasing overdose risk

• Several popular members of hip hop community have died from respiratory depression due to ingestion

• High-tech, Act, Wopp, Deuce
Bars (Ladders)

Another name for the rectangular shaped Xanax (anti-anxiety medication) with three lines in them (typically 2mg per ‘bar’).

• The term “barred out” means being highly sedated due to Xanax consumption.

• School bus (yellow ‘bar’)

• Hulks, green monsters (green)
Addies

Slang term for ADHD medication Adderall. It is a mixture of amphetamine salts.

- Commonly prescribed for ADHD
- Occasionally abused by students seeking a competitive advantage in their studies
- Replaced Ritalin as ADHD med
- Vyvanse
Hookah

- Instrument used to smoke flavored tobacco (often ornate in appearance)
- Smoke is passed through a water basin before inhalation
- Exposure to toxic chemicals not filtered by water
- Research has shown 70 fold increase in nicotine and other toxin levels after one evening of hookah use (source: 2014 American Association for Cancer Research)
Costs of Legalization will Outweigh Projected Revenue

- Projected Tax Revenues: $566 Million
- Projected Annual Costs: $670.5 Million
Impact of Marijuana Legalization

↑200%  Fatal crashes of drivers who recently used marijuana doubled in Washington after the state legalized it.

↑52%  Increased marijuana-related ER visits after legalization in Colorado from 2012-2016.

27%  Marijuana users in Colorado report driving high almost daily.

39%  Where marijuana is legal, users reported going to work high at least once a week.
## Estimated Costs of Legalization

<table>
<thead>
<tr>
<th>Increased Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased drugged driving fatalities</td>
<td>$231 M</td>
</tr>
<tr>
<td>Increased workplace absenteeism</td>
<td>$210.4 M</td>
</tr>
<tr>
<td>Increased drugged driving serious injuries</td>
<td>$85.2 M</td>
</tr>
<tr>
<td>Increased workplace injuries</td>
<td>$58.5 M</td>
</tr>
<tr>
<td>Regulatory costs</td>
<td>$35.4 M</td>
</tr>
<tr>
<td>Increased ER visits</td>
<td>$15.5 M</td>
</tr>
<tr>
<td>Marijuana concentrate lab explosions</td>
<td>$13.3 M</td>
</tr>
<tr>
<td>Increased homelessness</td>
<td>$11.9 M</td>
</tr>
<tr>
<td>Auto damage</td>
<td>$9.3 M</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td><strong>$670.5 M</strong></td>
</tr>
</tbody>
</table>
Effect of Marijuana Legalization on Youth

1/4 One out of four U.S. high school seniors would try marijuana or use it more often if it was legal.

10% Past year use of marijuana among those ages 12 and older is 10% greater in these states that have legalized recreational use compared to states that have not.

34% Colorado saw an average 34% increase in regional poison control cases per year, with most pediatric exposures involving an edible product.
Sources

- https://www.fda.gov/TobaccoProducts/GuidanceComplianceRegulatoryInformation/Manufacturing /ucm602792.htm#9
- https://www.webmd.com/smoking-cessation/news/20150218/e-cigarette.ingredients#1
The Rosecrance Griffin Williamson Campus is a 67,000 square foot, 80 bed treatment center for teens up to 20 years old.

The facility includes an on-site school, chapel, gymnasium, fitness center, healing garden and conservatory.
We have expanded our program to include treatment for the following challenges facing teens as a primary diagnosis:

- Mood disorder
- Bi-polar disorder
- Major depression
- Anxiety disorder
- Post Traumatic Stress Disorder (PTSD)
- Victims of abuse
- Self-destructive behaviors
- Suicidal behaviors
- Poor impulse control

Clients will see a psychiatrist twice a week or as needed during treatment. Clinicians are master’s prepared.
Specialized Programming for Teens with Mental Health Disorders

General treatment modalities may include:
- Personal medication management
- Individual and family therapy
- Group therapy
- Recreational therapy.

Specialized groups will address:
- Depression
- Mood management
- Cognitive Behavior Therapy (CBT) skills
- Dialectical Behavior Therapy (DBT) skills
- Drug and alcohol prevention
- Life skills

Other activities include:
- Therapeutic drumming, art, horticulture, yoga, ropes course, fitness, team building, and soothing room and mindfulness practice.
Teen & Adult Services:
- Assessments
- Prevention/Early Intervention Services
- Individual/Family Counseling

Adult Services:
- Intensive Outpatient Program
- Day Treatment
- Recovery Home

Teen & Adult Services:
- Assessments
- Prevention/Early Intervention Services
- Urine drug screens offered at an additional cost
- Resources and trainings for parents, professionals and community members
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